Investigating Suspected Cancer Clusters and Responding to Community Concerns: The Plan

Tuesday, March 21, 2017

The Purpose of Today

- To begin the process of determining if there is evidence of disease or cancer clusters in the geographic location?

Definition of a Cluster

CDC defines a cancer cluster as :

- ***a greater than expected number***
- ***of cancer cases***
- ***that occurs within a group of people***
- ***in a geographic area***
- ***over a period of time.***

a greater than expected number

Is the number is greater than expected if the observed number of cases is higher than one would typically observe in a similar setting (in a group with similar population, age, race, or sex).

- Who are the members of our group that have cancer?
- What are we comparing our group against?

…of cancer cases…

Do all of the cases involve the **same type of cancer,** or types of cancer scientifically proven to have the same cause?

- What kind of cancer do the members of our group have?
- Do we know what causes those kinds of cancers?

…that occurs within a group of people…

The population must be carefully defined by factors such as race, ethnicity, age, and sex, for purposes of calculating cancer rates (expressed as the number of cases per 100,000 person over a specific period of time).

- Beware of the “sharpshooter fallacy.”
- Can we identify all the affected persons?

The Sharpshooter Fallacy

…in a geographic area…

Both the number of cancer cases included in the cluster and calculation of the expected number of cases can depend on how we define the geographic area where the cluster occurred. The boundaries must be defined carefully. It is possible to “create” or “obscure” a cluster by selection of a specific area.

- Have we defined the geographic area?
- What kind of criteria are we using?

…over a period of time.

The number of cases included in the cluster—and calculation of the expected number of cases—will depend on how we define the time period over which the cases occurred.

- Have we defined the time frame over which the cases occurred?
- What kind of criteria are we using?
- At least 10 years, never one year alone.

Association vs. Causation

- Causation: The action of directly causing or producing an event.
- Association: A connection between events that may or may not be causally linked.
- **Strength:** How strong is the statistical association between the risk factor and the illness?
- **Consistency:** How many studies have found the same relationship between a specific agent or risk factor and a specific illness?
- **Specificity:** Is the risk factor only related to this disease? If so, the probability of a causal relationship is high.

Four-Step Process for Evaluating Suspected Clusters

The CDC has developed a four step guideline to investigate suspected clusters. They are:

Step 1: Initial contact and response

Step 2: Assessment

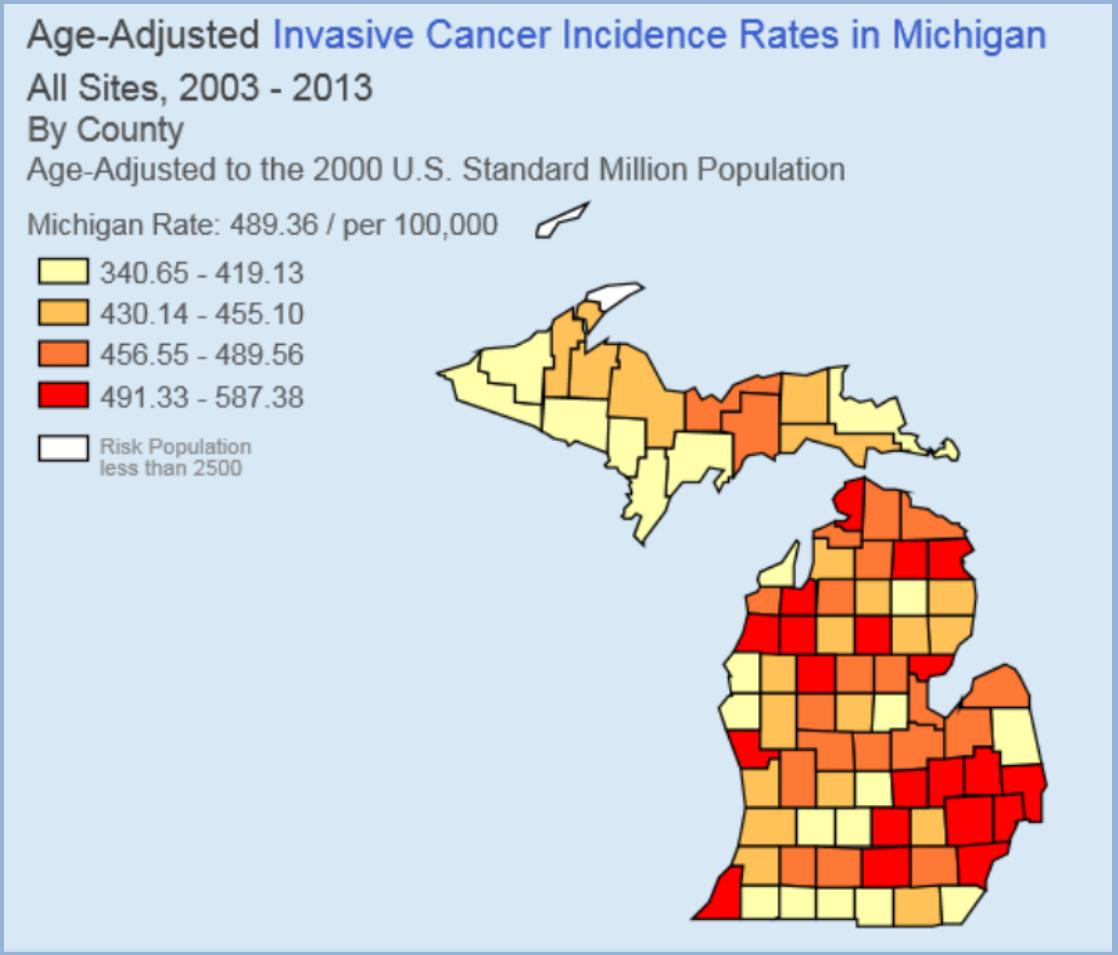
Step 3: Determining the feasibility of conducting an epidemiologic study

Step 4: Conducting an epidemiologic study to assess the association between cancers and environmental causes.

Important Items to Consider

- Some cancer rates (e.g., breast cancer) may be higher due to better medical care or screening in certain areas.
- Cancer rates in each group or community tend to change over time because the community changes.
- Cancer is at least partly a disease of aging.
- Cancer is not one disease, but many.
- Cancer can take a long time to develop.
- Cancer is a common disease.

Bay County Data



Bay County Cancer Data

Invasive Cancer Incidence Rates in Bay County, Michigan

All Sites, 2003 - 2013

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2003-2013
Population at Risk	109559	109453	109165	108711	108132	108320	107913	107695	107477	107084	106936	1190445
Total Cases	692	611	660	777	727	715	634	562	682	583	587	7230
CrudeRate	631.62	558.23	604.59	714.74	672.33	660.08	587.51	521.84	634.55	544.43	548.93	607.34
Age-Adjusted Rate	542.53	472.57	504.66	592.7	545.32	530.96	465.57	404.26	496.34	412.83	414.11	487.23
Statewide Age-Adjusted Rate	520.45	504.05	504.53	504.21	517.08	489.78	485.79	489.16	485.13	456.78	440.07	489.36

Note: All rates are per 100000. Rates are age-adjusted to the 2000 U.S. Standard Million Population.

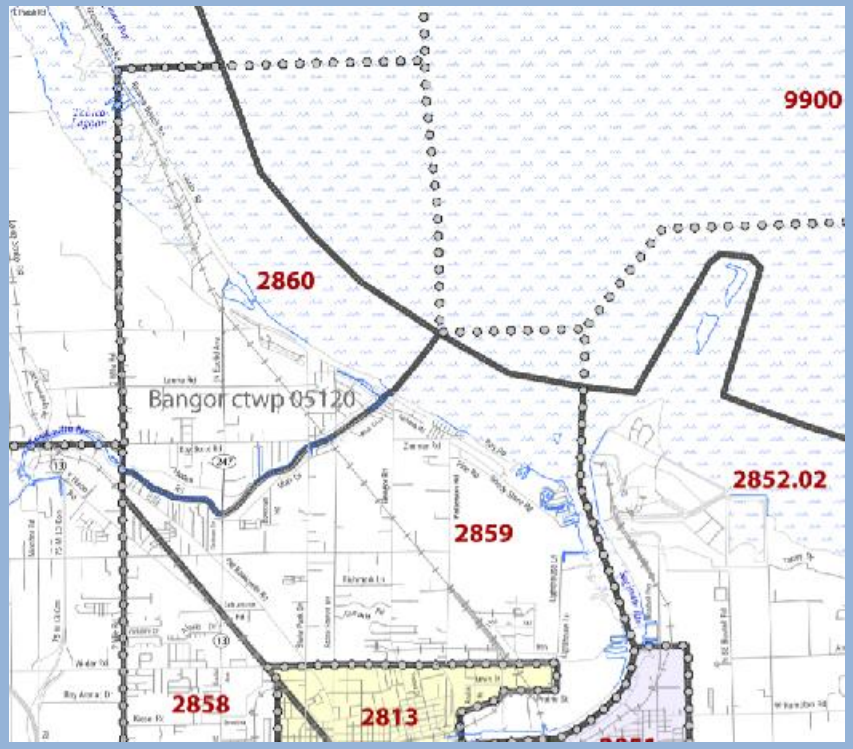
Rates generated on March 21, 2017

Based on data released April 15, 2015

Preliminary Analysis

- Contacted MDHHS--Michigan Cancer Surveillance Program (MCSP)--to review Cancer Data for Census Tracts 285900 and 286000
- MCSP has calculated Standardized Incidence Ratios (SIRs) for four sites, including all invasive cancers, bone and soft tissue, lung and bladder cancers. There were no ratios of observed to expected cases significantly higher in the time period of 2004 to 2013.

Census Tracts



Timelines for Evaluating Suspected Clusters

Step 1: Initial contact and response (Feb - March)

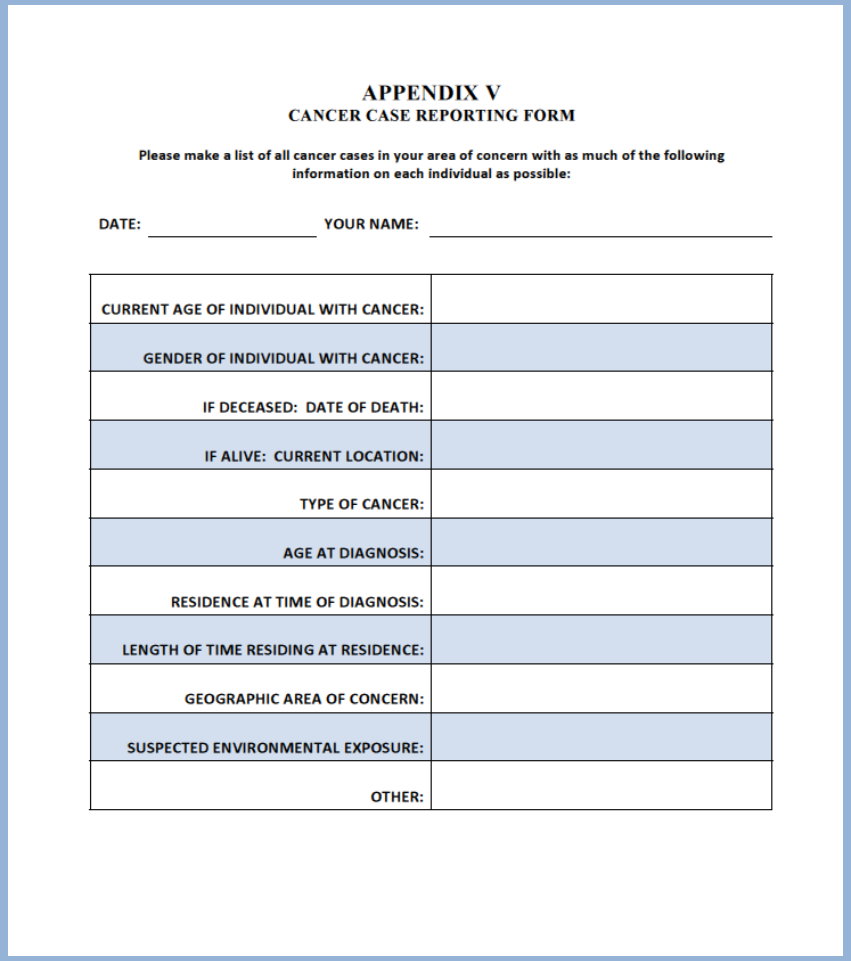
Step 2: Assessment (April –June)

Step 3: Determining the feasibility of conducting a full epidemiologic study (June – July)

Step 4: Conducting an epidemiologic study to assess the association between cancers and environmental causes.

What You Can Expect

- This is a voluntary process, it is not mandatory. You can stop at any time.
- We take your privacy and confidentiality seriously. No individual information collected will be shared with anyone outside of the official investigation.
- Tracy Metcalfe and/or Liz Warmbier will contact you and set up an appointment to discuss your or your families health history in the context of the cluster investigation.



APPENDIX V
CANCER CASE REPORTING FORM

Please make a list of all cancer cases in your area of concern with as much of the following information on each individual as possible:

DATE: _____ YOUR NAME: _____

CURRENT AGE OF INDIVIDUAL WITH CANCER:	
GENDER OF INDIVIDUAL WITH CANCER:	
IF DECEASED: DATE OF DEATH:	
IF ALIVE: CURRENT LOCATION:	
TYPE OF CANCER:	
AGE AT DIAGNOSIS:	
RESIDENCE AT TIME OF DIAGNOSIS:	
LENGTH OF TIME RESIDING AT RESIDENCE:	
GEOGRAPHIC AREA OF CONCERN:	
SUSPECTED ENVIRONMENTAL EXPOSURE:	
OTHER:	

Next Steps

1. Individual Meetings –April/May
2. Collation of Initial Data – April/May
3. Follow Up – May/June
4. Recommendation –June/July

For More Information

- Bay County Website:

www.baycounty-mi.gov/health

- Individual Inquiries:

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